## In the Claims

Claim 1. **(Currently Amended)** A method of imaging, measuring and displaying a 3-dimensional dose distribution of an energy field in a translucent 3-dimensional object comprising:

(a)     applying an energy field to the object such that the optical properties are changed upon receipt of the energy;

(b)     optically scanning the object at various positions and angles to provide a series of 2-dimensional representations of the object;

(c)     detecting the measuring light projection data indicative of optical changes in the object;

(d)     calibrating the optical change in the object transmitted through the object by x-rays to the dose of the energy corresponding to each position scan;

(e)     mapping the dose of the energy in the object transmitted through the object, and

(f)     visually recording the summation of said 2-dimensional representations on an image display receiver using said energy transmitted through the object comprising a radiation activated metal salt of a crystalline, thermochromic polyacetylene having a conjugated structure uniformly distributed in a rigid or high density semi-solid matrix by a color alteration due to polymerization of the activated polyacetylene to provide a permanent, 3-dimensional image of the object in high spatial resolution.

Claims 2. – 7. **(Cancelled)**

Claim 8. **(Original)** The method of claim 1 wherein said crystalline polyacetylene is a $C_2$ to $C_{10}$ radiochromic monomer having the formula:

$$A\text{-}(CH_2)_m\text{-}(C\equiv C\text{-})_p\text{-}(CH_2)_n\text{-}B$$
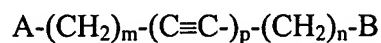
wherein m and n each independently have a value of from 0 to 30; p has a value of 2 to 4; A and B each independently are R, $OR_1$, OH, $COOR_2$, $CONR_3R_4$ or $(CH_2)_r$-O-CO-$NR_5R_6$ or a metal salt of the acid or ester; and where R, $R_1$, $R_2$, $R_3$, $R_4$, $R_5$ and $R_6$ are each independently hydrogen or $C_1$ to $C_{12}$ alkyl or aryl and r has a value of from 1 to 4.

Claim 9. **(Original)** The method of claim 1 wherein the metal salt of the crystalline polyacetylene is a lithium salt.